

**ADMINISTRATIVE NOTE:**  
**NEW REQUIREMENTS/PROCEDURES**

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**BAA 01-38 PROPOSER INFORMATION PAMPHLET**

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The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first in the *Commerce Business Daily (CBD)*, published by the U.S. Government, Department of Commerce. The following information is for those wishing to respond to the Broad Agency Announcement.

**AUGMENTED COGNITION, SOL BAA 01-38, DUE: 09/11/02; POC: LCDR DYLAN SCHMORROW, Ph.D., DARPA/ITO; FAX: (703) 522-7161**

**AUGMENTED COGNITION PROGRAM OBJECTIVE:**

The Defense Advanced Research Projects Agency (DARPA) is soliciting proposals for research on various aspects of human computer symbiosis under the Augmented Cognition effort. The goal of the DARPA Augmented Cognition effort is to extend, by an order of magnitude or more, the information management capacity of the human-computer relationship for the 21<sup>st</sup> century warfighter. This will be achieved by developing and demonstrating quantifiable enhancements to human cognitive ability in diverse, stressful, operational environments. Specifically, this effort will empower one human's ability to accomplish the functions currently carried out by three or more individuals and will improve and enhance the quality of military decision-making. A key objective of the effort is to foster the development of novel (and improvement of existing) prototypes and enabling technologies, in order to experiment with and understand the means by which they may be integrated into developing and existing operational systems. By both delivering new design principles for human-computer symbiosis and incorporating our new-found knowledge of the human brain, Augmented Cognition will totally reconceptualize our current computing systems. This program seeks early implementation of technologies that demonstrate advances in the state-of-the-art in human-machine collaborative systems. Research areas of interest include the development of cognitive and neurological tools and metrics to evaluate and quantify new concepts for human-machine collaborations, as well as the development of technologies that: (1) enhance the capabilities of humans engaged in stressful tasks; (2) permit a single operator to effectively control numerous entities, i.e., three or more autonomous objects or functions; (3) put all human sensory capabilities (the brain) "on task," i.e., effectively performing tasks more efficiently; and (4) provide context for personnel in operational environments which may enhance memory (recall). In order to evaluate and demonstrate research results, this program will require the development of algorithms, sensors, and interfaces for effective interaction and monitoring of humans and computers in operational environments. Areas of interest include development of cognitive amplification environments, evaluating cognition under stress, and performing operational feasibility experiments. The research interest areas listed above are not exhaustive nor are they prioritized.

This solicitation requests one-year proposals, beginning in FY2001. Multiple awards are expected.

## **PROGRAM SCOPE:**

Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific strategies listed above, and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the goals stated. Research should result in prototype hardware and/or software demonstrating integrated concepts and approaches. Specifically excluded is research that primarily results in evolutionary improvement to the existing state of practice or focuses on a specific system or solution. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. Proposals may involve other research groups or industrial cooperation and cost sharing.

## **SUBMISSION PROCESS:**

The Defense Advanced Research Projects Agency/Information Technology Office (DARPA/ITO) requires completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Proposal, by accessing the URL below:

<http://www.dyncorp-is.com/BAA/index.asp?BAAid=01-38>

After finalizing the **BAA Cover Sheet Submission**, the proposer must submit the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the "original" and each designated number of copies. The Confirmation Sheet should be the first page of your Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

An original and **4** copies of the full proposal, and **2** electronic copies (i.e., **2** separate disks) of the full proposal (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format on one 3.5-inch floppy disk or one 100 MB Iomega Zip disk). Each disk must be clearly labeled with BAA 01-38, proposer organization, proposal title (short title recommended) and Copy \_\_\_\_ of **2**. The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by 4:00 PM (ET) **Tuesday, September 11, 2001**, in order to be considered in connection with the initial evaluation and award schedule for this program discussed in the PIP. However, BAA 01-38, Augmented Cognition, will remain open until 4:00 PM (ET) Wednesday, September 11, 2002. Thus, proposals may be submitted at any time from issuance of this BAA through September 11, 2002. While the proposals submitted after the **September 11, 2001** deadline above will be evaluated by the Government, proposers should keep in mind that the likelihood of funding such proposals is less than for those proposals submitted in connection with the initial evaluation and award schedule. DARPA will acknowledge receipt of submissions and assign control numbers that should be used in all further correspondence regarding proposals.

The typical proposal should express a consolidated effort in support of one or more technical topic areas. Disjointed efforts should not be included in a single proposal.

Restrictive notices notwithstanding: Proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements.

## **EVALUATION AND FUNDING PROCESSES:**

Proposals will not be evaluated against each other, since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in PROPOSAL FORMAT Section I and Section II (see below). Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria, which are listed in descending order of relative importance:

- (1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable. The technical concept should be clearly defined and developed. Emphasis should be placed on the technical value of the development and experimentation approach.
- (2) Innovative Technical Solution to the Problem: Proposed efforts should apply new or existing technology in a new way such as is advantageous to the objectives. The plan on how offeror intends to get developed technology and information to the user community should be considered.
- (3) Potential Contribution and Relevance to DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the undertaking. The relevance is further indicated by the offeror's understanding of the operating environment of the capability to be developed.
- (4) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.
- (5) Plans and Capability to Accomplish Technology Transition: The offeror should provide a clear explanation of how the technologies to be developed will be transitioned to capabilities for military forces. Technology transition should be a major consideration in the design of experiments, particularly considering the potential for involving potential transition organizations in the experimentation process.

- (6) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described. Evaluation will consider the value to Government of the research and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

Proposals may be reviewed by non-government personnel; however, contractors will not be used to conduct evaluations or analyses of any aspect of a proposal submitted under this BAA, unless one of the three conditions identified in FAR 37.203(d) applies.

As soon as the proposal evaluation is completed, the proposer will be notified of selectability or non-selectability. Selectable proposals will be considered for funding; non-selectable proposals will be destroyed. (Copies of non-selectable proposals may be retained for filing purposes.) Not all proposals deemed selectable will be funded. Decisions to fund selectable proposals will be based on funds available, scientific and technical merit, and potential contribution and relevance to DARPA's mission and offeror's capabilities and expertise. In addition, proposal funding decisions may be based on research efforts most relevant to program goals. DARPA may retain some selectable proposals for a period of up to one year, in order to reconsider those proposals for funding. Submitters of those retained proposals will receive notification to that effect.

The Government reserves the right to select for award all, some, or none of the proposals received. Proposals identified for funding may result in a contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. If warranted, portions of resulting awards may be segregated into pre-priced options.

#### **GENERAL INFORMATION:**

Proposals not meeting the format described in this pamphlet may not be reviewed. Proposals **MUST NOT** be submitted by fax **or e-mail**; any so sent will be disregarded. The *Commerce Business Daily* notice, in conjunction with this pamphlet, BAA 01-38 Proposer Information Pamphlet (PIP) and all references, constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or other solicitation regarding this announcement be issued. Requests for same will be disregarded. All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

**NEW REQUIREMENTS/PROCEDURES:** The Award Document for each proposal selected and funded will contain a mandatory requirement for submission of DARPA/ITO Quarterly Status Reports and an Annual Project Summary Report. These reports, described below, will

be electronically submitted via the DARPA/ITO Web-Based Information Tool, utilizing the government furnished Uniform Resource Locator (URL) on the World Wide Web (WWW).

(a) Status Report: Due at least three (3) times per year – Jan, Apr, & Oct

1) Technical Report

a) Project General Information

b) Technical Approach

- Accomplishments

- Goals

- Significant changes / improvements

c) Deliverables

d) Transition Plan

e) Publications

f) Meetings and Presentations

g) Project Plans

h) Near term Objectives

2) Financial Report

3) Project Status / Schedule

(b) Project Summary (PSum): Due once each fiscal year in July

1) All Sections of the Status Report

2) QUAD Chart

a) Visual Graphic

b) Impact

c) New Technical Ideas

d) Schedule

## **PROPOSAL FORMAT:**

Proposals shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point) and with text on one side only. The submission of other supporting materials along with the proposal is strongly discouraged. Sections I and II of the proposal shall not exceed 40 pages. Maximum page lengths for each section are shown in braces { } below.

### **Section I. Administrative**

{1} Cover Page including: (1) BAA number; (2) Technical topic area; (3) Proposal title; (4) Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (5) Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (6) Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant; and (7) Contractor's type of business, selected from among the following categories:

"WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

## **Section II. Detailed Proposal Information**

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

- A. {1} Innovative claims for the proposed research. This page is the centerpiece of the proposal and should succinctly describe the unique proposed contribution.
- B. {1} A "Proposal Roadmap" which shall address the following nine areas that must be addressed in the proposal. For each area, the roadmap will contain a summary statement (or "sound bite") for that area and identify the page number(s) where the issue is addressed in detail. It is important to make these statements as explicit and informative as possible. The areas are:
  - 1. Main goal of the work (stated in terms of new, operational capabilities for assuring that critical information is available to key users).
  - 2. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).
  - 3. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).
  - 4. Main elements of the proposed approach.
  - 5. Specific basis for confidence that the proposed approach will overcome the technical barriers. ("We have a good team and good technology" is not a useful statement.)
  - 6. Nature of expected results (unique/novel/critical capabilities to result from this effort, and form in which they will be defined).
  - 7. The risk if the work is not done.
  - 8. Criteria for evaluating progress and capabilities.
  - 9. Cost of the proposed effort for each contract year.

- C. {17} Technical rationale, technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverables.
- D. {2} Deliverables associated with the proposed research. Include in this section all proprietary claims to results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. The offeror must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights (see DFARS 227.)
- E. {3} Statement of Work (SOW) written in plain English, outlining the objectives and scope of the effort and citing specific tasks to be performed and specific contractor requirements.
- F. {1} A graphic illustration of the milestones and schedule, including but not limited to, a multi-phase development plan which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust experiments over the project life that will show applicability to the overall program concept.
- G. {2} Technology Transfer. Description of the transferable technology and expected technology transfer path.
- H. {3} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
- I. {2} List of key personnel, concise summary of their qualifications, and discussion of proposer's previous accomplishments and work in this or closely related research areas. Indicate the level of effort to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity.
- J. {1} Description of the facilities that would be used for the proposed effort. If any portion of the research is predicated upon the use of Government Owned Resources of any type, the offeror shall specifically identify the property or other resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required for conduct of the proposed research, the proposal shall so state.
- K. {1} Experimentation and Integration Plans. Offerors shall describe how their results could be integrated with solutions that other contractors are currently developing or are likely to develop. In addition, offerors should identify experiments to test the hypotheses of their approaches and be willing to work with other contractors in order to develop joint experiments in a common testbed environment. Offerors should expect to participate in

teams and workshops to provide specific technical background information to DARPA, attend semi-annual Principal Investigator (PI) meetings, and participate in numerous other coordination meetings via teleconference or Video Teleconference (VTC). Funding to support these various group experimentation efforts should be included in technology project bids.

- L. {5} Cost by task, with breakdown into accounting categories and equipment for the entire contract and for each contract year. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as contract options with separate cost estimates for each. Details of any cost sharing should also be included.



MANDATORY!

- M. Contractors requiring the purchase of information technology (IT) resources as Government Furnished Property (GFP) **MUST** attach to the submitted proposals the following information:

1. A letter on Corporate letterhead signed by a senior corporate official and addressed to **LCDR Dylan Schmorrow**, DARPA/ITO, stating that you either can not or will not provide the information technology (IT) resources necessary to conduct the said research.
2. An explanation of the method of competitive acquisition or a sole source justification, as appropriate, for each IT resource item.
3. If the resource is leased, a lease purchase analysis clearly showing the reason for the lease decision.
4. The cost for each IT resource item.

Awards made under this BAA may be subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All affirmations must state which office(s) the offeror supports, and identify the prime contract number.

Affirmations should be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 9.501, must be disclosed in Section II., H of the proposal, organized by task and year. This disclosure shall include a description of the action the Contractor has taken, or proposes to take, to avoid, neutralize, or mitigate such conflict.

### Section III. Additional Information



A bibliography of relevant technical papers and research notes (published and unpublished) that document the technical ideas, upon which the proposal is based, may be included in the proposal submission. Provide one set for the original full proposal and one set for each of the **4** full proposal hard copies. Please note: The materials described in this section, and submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal for evaluation purposes.

**The administrative addresses for this BAA are:**

Fax: 703-522-7161 Addressed to: DARPA/ITO, BAA 01-38

Electronic Mail: baa01-38@darpa.mil

Electronic File Retrieval: <http://www.darpa.mil/ito/Solicitations.html>

Mail to: DARPA/ITO

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